IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellants: Leonardus Joseph Michael Ruitenberg et al. Group Art Unit: 2618

Application No.: 10/516,548 Examiner: Hu, Rui Meng

Filed: December 2, 2004 Confirmation No.: 5731

For: RECEIVER SIGNAL STRENGTH INDICATION

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APPEAL BRIEF UNDER 37 C.F.R. § 41.37(a)

This is an appeal to the Board of Patent Appeals and Interferences from the decision of the Examiner dated May 13, 2009, which finally rejected claims 1 and 3-6 in the above-identified application. The Office date of receipt of Appellants' Notice of Appeal was July 1, 2009. This Appeal Brief is hereby submitted pursuant to 37 C.F.R. § 41.37(a).

CERTIFICATE OF MAILING UNDER 37 C.F.R. 1.8

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Date:____________ Signed:_______________________________

Typed Name: Mark A. Wilson

TABLE OF CONTENTS

I. REAL PARTY IN INTEREST

The real party in interest is the assignee of the full interest in the invention, NXP B.V., of Eindhoven, Netherlands.

II. RELATED APPEALS AND INTERFERENCES

To the best of Appellants' knowledge, there are no appeals or interferences related to the present appeal that will directly affect, be directly affected by, or have a bearing on the Board's decision in the instant appeal.

III. STATUS OF CLAIMS

Claims 2, 5, and 6 are canceled.

No claims are withdrawn.

No claims are objected to.

No claims are allowed.

Claims 1, 3, and 4 stand rejected as follows:

Claims 1 and 4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Katsura et al. (U.S. Pat. No. 6,683,925, hereinafter Katsura) in view of Jacques et al. (U.S. Pat. Pub. No. 2002/0048267, hereinafter Jacques).

Claim 3 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Katsura in view of Jacques, in further view of Lampe et al. (U.S. Pat. No. 5,852,772, hereinafter Lampe).

Claims 1, 3, and 4 are the subject of this appeal. A copy of claims 1, 3, and 4 is set forth in the Claims Appendix.

IV. STATUS OF AMENDMENTS

A proposed amendment was submitted subsequent to the Final Office Action mailed May 13, 2009. The proposed amendment was entered by the Examiner, as indicated in the Advisory Action mailed on June 22, 2009.

V. SUMMARY OF CLAIMED SUBJECT MATTER

This section of this Appeal Brief is set forth to comply with the requirements of 37 C.F.R. § 41.37(c)(1)(v) and is not intended to limit the scope of the claims in any way. Examples of implementations of the limitations of independent claim 1 are described below.

The language of claim 1 relates to a receiver strength indication circuit receiving a discretely controlled amplified signal from an amplifying means. Abstract. In particular, claim 1 recites narrow filter means, logarithmic detector means, analog-to-digital means, and memory means. The narrow filter means is coupled to an output of the discretely controlled amplifying means. Specification, page 2, lines 1-3. One example of the structure which implements the narrow filter means includes the narrow filter (i.e., band-pass filter). Specification, page 1, lines 18-21; Fig. 1, narrow filter (NF). The narrow filter means provides a limited spectrum of the input signal. Specification, page 3, lines 20-22. The narrow filter means is a band-pass filter with a narrow passband. Specification, page 1, line 20. The logarithmic detector means receives and logarithmically amplifies an output of the narrow filter means. Specification, page 3, lines 22-24. One example of the structure which implements the logarithmic detector means includes the logarithmic level detection. Specification, page 1, lines 18-21; Fig. 1, logarithmic level detection (log). The analog-to-digital means converts the output of the logarithmic detector to a digital receiver signal strength indication. Specification, page 2, lines 17-20. One example of the structure which implements the analog-to-digital conversion means includes the analog-to-digital converter. Specification, page 1, lines 18-21; Fig. 1, analog-to-digital converter (ADC). The memory means stores an amplification setting of the discretely controlled amplifying means relative to a first radio-frequency (RF) input level and the digital receiver signal strength indication. Specification, page 3, lines 6-9. The stored amplification setting serves as a reference to tune the circuit for a subsequent RF input level. Specification, page 2, lines 21-23. One example of the structure which implements the memory means includes a memory. Specification, page 3, lines 6-9.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claims 1 and 4 are patentable over the combination of Katsura and Jacques under 35 U.S.C. § 103(a).

B. Whether claim 3 is patentable over the combination of Katsura, Jacques, and Lampe under 35 U.S.C. § 103(a).

VII. ARGUMENT

For the purposes of this appeal, claims 1 and 4 are argued together as a group for purposes of the question of patentability over the combination of Katsura and Jacques under 35 U.S.C. 103(a). Claim 3 is argued separately for purposes of the question of patentability over the combination of Katsura, Jacques, and Lampe under 35 U.S.C. § 103(a).

A. <u>Claims 1 and 4 are patentable over the combination of Katsura and Jacques because the combination of cited references does not teach a logarithmic detector means that receives and logarithmically amplifies an output of a narrow filter</u>.

Appellants respectfully submit that claim 1 is patentable over the combination of Katsura and Jacques because the combination of cited references does not teach all of the limitations of the claim. Claim 1 recites:

> A receiver signal strength indication circuit receiving a discretely controlled amplified signal from an amplifying means (A1-A4), the circuit comprising:
>
> <u>narrow filter means coupled to an output of the discretely controlled amplifying means (A1-A4), said narrow filter means providing a limited spectrum of the input signal;</u>
>
> <u>logarithmic detector means for receiving and logarithmically amplifying an output of the narrow filter;</u>
>
> analog-to-digital (ADC) means for converting the output of the logarithmic detector to a digital receiver signal strength indication; and
>
> memory means to store an amplification setting of the discretely controlled amplifying means relative to a first radio-frequency (RF) input level and the digital receiver signal strength indication, wherein the stored amplification setting is configured to serve as a reference to tune the circuit for a subsequent RF input level.

(Emphasis added.)

For a proper contextual understanding of the language of the claim, it should be noted that a narrow filter is a type of band-pass filter. In the art, there are generally three types of frequency passing filters: low-pass filters, high-pass filters, and band-pass filters. Low-pass filters include a single cut-off frequency, and frequencies above the cut-off frequency attenuate, whereas frequencies below the low-pass cut-off frequency pass through. High-pass filters also include a single cut-off frequency, and frequencies above the cut-off frequency pass through, whereas frequencies below the cut-off frequency attenuate. Hence, the low- and high-pass filters have a single cut-off frequency. These types of filters pass all of the frequencies on one side of the cut-off frequency, while attenuating all of the frequencies on the other side of the cut-off frequency.

In contrast to low- and high-pass filters, a band-pass filter includes two cut-off frequencies. The frequencies between the cut-off frequencies pass through the band-pass filter, whereas the frequencies outside of the band (i.e., below the lower cut-off frequency and above the upper cut-off frequency) attenuate. The presence of two cut-off frequencies defines the "band" of the band-pass filter. The ability to pass frequencies in the band between the cut-off frequencies and attenuate frequencies on both sides of the band is what defines the band-pass filter as a "narrow" filter.

Low- and high-pass filters are not narrow filters, or band-pass filters, because low- and high-pass filters do not define a <u>band</u> that is bounded by multiple cut-off frequencies. Thus, low- and high-pass filters essentially have frequency ranges that are unrestricted (in terms of filtering) on at least one end of the applicable frequency range. More specifically, high-pass filters do not define a narrow band because high-pass filters merely have a single cut-off frequency and, hence, attenuate signals on only one side of a single cut-off frequency. Similarly, low-pass filters do not define a narrow band because low-pass filters merely have a single cut-off frequency and, hence, attenuate signals on only one side of a single cut-off frequency. Additionally, since there are no signals below zero, there is no need for low-pass filters to implement a second cut-off frequency to attenuate signals below zero. Consequently, there is no need for low-pass filters to define a band for which attenuations occurs on both sides of the band.

Moreover, to the extent that a low-pass filter passes baseband signals, it should be recognized that baseband signals are simply signals whose frequencies range between

zero and the highest frequency passed by the low-pass filter. Although the term "baseband" relates to the bandwidth of signals passed by a low-pass filter, the term "baseband" does not inherently impose any type of limitations on the extent, or range, of the bandwidth that is passed. Rather, a baseband bandwidth is merely the range of frequencies between zero and the highest frequency that is passed by the low-pass filter. For example, if the cut-off frequency is set very high (i.e., much higher than zero), then the baseband bandwidth of the low-pass filter will be very wide. On the other hand, if the cut-off frequency is set very low (i.e., close to zero), then the baseband bandwidth of the low-pass filter will be less wide.

However, even if the baseband bandwidth of a low-pass filter were relatively small, the low-pass filter would nevertheless not be called a narrow filter because the phrase "narrow filter" refers to a <u>type</u> of filter, rather than to the extent of the <u>bandwidth</u> of the filter. In particular, a narrow filter is a band-pass filter, not a low-pass filter. Furthermore, a low-pass filter is not a narrow filter, even though the baseband bandwidth of the low-pass filter may be small. Thus, the general understanding in the art recognizes the distinction between a narrow type of filter and a filter with a small bandwidth.

Additionally, while the details of the specification are not read into the limitations of the claim, this general understanding of a narrow filter as a band-pass filter is consistent with the disclosure of the present application. The specification of the present application describes the narrow filter as a band-pass filter with " 'narrow' <u>band</u> selectivity." Present Application, page 1, line 20. Also, the specification expressly refers to the narrow filter as a "bandfilter NF." Present Application, page 3, lines 20-24. Additionally, the graphical depiction within the narrow filter element NF shown in Fig. 1 depicts the narrow filter element NF as a <u>band-pass filter</u>, specifically including two cut-off frequencies where the frequency signals above and below the cut-off frequencies are attenuated. Present Application, Fig. 1, NF. Hence, the description in the specification and the illustration in the drawing of the present application are consistent with the general understanding that a narrow filter is a specific type of filter, namely a band-pass filter.

With this general understanding of the difference between a low-pass filter and a band-pass filter (i.e., a narrow filter), it should be clear that the combination of cited

references does not teach all of the limitations of the claim. In particular, the combination of Katsura and Jacques does not teach all of the limitations of the claim because the combination of cited references does not teach a narrow filter means coupled to an output of the discretely controlled amplifying means and a logarithmic detector receiving and logarithmically amplifying the output of the narrow filter. For reference, the Office Action relies solely on Katsura as teaching the indicated language of the claim. Hence, the Office Action does not rely on Jacques as purportedly teaching the indicated limitation.

Katsura generally relates to a wireless terminal device with a logarithmic amplifier <u>to detect a level of a baseband signal</u> at an input of a variable gain amplifier. Katsura, abstract. In other words, Katsura expressly teaches a logarithmic amplifier receiving a baseband signal. As described above, a baseband signal corresponds to a low-pass filter. In fact, Katsura explicitly describes that a logarithmic amplifier 11 receives a baseband signal from the output of a <u>low-pass filter 7</u>. Katsura, page 5, lines 5-17; illustrated in Figs. 1, 3, 5, 7, 11, 15, and 16.

The Examiner asserts that the low-pass filter 7 of Katsura teaches a narrow filter, as recited in claim 1 of the present application. Office Action, 5/13/09, page 4. Additionally, the Examiner states that the low-pass filter 7 of Katsura is purportedly a narrow filter because the low-pass filter 7 passes baseband signals. Advisory Action, 6/22/09, page 2, lines 3-4. However, despite the Examiner's assertions, the low-pass filter of Katsura is not a narrow filter because a low-pass filter is <u>a different type of filter</u>. Specifically, the low-pass filter of Katsura is not a band-pass filter. Hence, the low-pass filter 7 of Katsura is not narrow filter means, as recited in the claim.

Furthermore, even if the term "narrow" were construed to refer to the bandwidth of the filter, rather than the type of filter, Katsura nevertheless fails to teach a narrow bandwidth. Although the Examiner refers in the Advisory Action to passing baseband signals, the mere reference to baseband signals does not indicate that the baseband bandwidth is small, or narrow. In fact, the baseband bandwidth of the low-pass filter of Katsura potentially could be very large, or wide. The Examiner does not provide any evidence of a small, or narrow, bandwidth of the low-pass filter of Katsura. Therefore, the Examiner's articulated reasoning based on the purportedly "narrow" bandwidth of the

low-pass filter of Katsura nevertheless fails to establish a *prima facie* case of obviousness at least because the Examiner's reasoning is not supported by a rational underpinning to show how the baseband bandwidth of the low-pass filter might be small, or narrow.

Additionally, it should be noted that Katsura separately teaches a band-pass filter 4. Katsura, col. 1, lines 33-45; illustrated in Figs. 1, 3, 5, 7, and 11. However, Katsura does not describe the logarithmic amplifier 11 receiving or logarithmically amplifying an output of the band-pass filter 4. Id. In fact, as displayed in the Figs. 1, 3, 5, and 7 of Katsura, the band-pass filter 4 is separated from the logarithmic amplifier 11 by at least a quadrature mixer 5 and an amplifer 6. Katsura, col. 5, lines 5-17; illustrated in Figs. 1, 3, 5, and 7. Since the logarithmic amplifier 11 of Katsura receives the output of the low-pass filter 7, instead of the output from the band-pass filter 4, Katsura does not teach receiving or logarithmically amplifying an output of the band-pass filter 4, as recited in the claim. Therefore, the band-pass filter of Katsura also fails to teach logarithmic detector means for receiving and logarithmically amplifying an output of the narrow filter, as recited in the claim.

For the reasons presented above, the combination of Katsura and Jacques does not teach all of the limitations of the claim because Katsura does not teach a narrow filter means coupled to an output of the discretely controlled amplifying means and a logarithmic detector receiving and logarithmically amplifying the output of the narrow filter, as recited in the claim. Accordingly, Appellants respectfully assert claim 1 is patentable over the proposed combination of Katsura and Jacques.

Claims 3 and 4 depend from and incorporate all of the limitations of independent claim 1. Appellants respectfully submit that dependent claims 3 and 4 are also patentable over the combination of cited references based on an allowable base claim. Additionally, claims 3 and 4 may be allowable for further reasons. Accordingly, Appellants request that the rejection of claim 1, 3, and 4 under 35 U.S.C. § 103(a) be withdrawn.

B. Claim 3 is patentable over the combination of Katsura and Jacques because the combination of cited references does not teach all of the limitations of the claim.

Claim 3 depends from and incorporates all of the limitations of independent claim 1. Appellants respectfully submit that dependent claim 3 is also patentable over the combination of cited references based on an allowable base claim. Additionally, claim 3 may be allowable for further reasons. Accordingly, Appellants request that the rejection of claim 3 under 35 U.S.C. § 103(a) be withdrawn.

VIII. CONCLUSION

For the reasons stated above, claims 1, 3, and 4 are patentable over the cited references. Thus, the rejections of claims 1, 3, and 4 should be withdrawn. Appellants respectfully request that the Board reverse the rejections of claims 1, 3, and 4 under 35 U.S.C. § 103(a) and, since there are no remaining grounds of rejection to be overcome, direct the Examiner to enter a Notice of Allowance for claims 1, 3, and 4.

At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account **50-4019** pursuant to 37 C.F.R. 1.25. Additionally, please charge any fees to Deposit Account **50-4019** under 37 C.F.R. 1.16, 1.17, 1.19, 1.20 and 1.21.

Respectfully submitted,

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IX. CLAIMS APPENDIX

1. A receiver signal strength indication circuit receiving a discretely controlled amplified signal from an amplifying means (A1-A4), the circuit comprising:

narrow filter means coupled to an output of the discretely controlled amplifying means (A1-A4), said narrow filter means providing a limited spectrum of the input signal;

logarithmic detector means for receiving and logarithmically amplifying an output of the narrow filter;

analog-to-digital (ADC) means for converting the output of the logarithmic detector to a digital receiver signal strength indication; and

memory means to store an amplification setting of the discretely controlled amplifying means relative to a first radio-frequency (RF) input level and the digital receiver signal strength indication, wherein the stored amplification setting is configured to serve as a reference to tune the circuit for a subsequent RF input level.

2. (canceled)

3. An integrated tuner comprising a receiver signal strength indication circuit as claimed in claim 1, wherein the amplifying means (A1-A4, SF1, SF2, M) include selectivity filtering means (SF1, SF2) connected between the discretely controlled amplifying means and the logarithmic detector means.

4. An integrated tuner comprising a receiver signal strength indication circuit as claimed in claim 1, wherein the amplifying means (A1-A4, SF1, SF2) include a mixer (M).

5. (canceled)

6. (canceled)

X. EVIDENCE APPENDIX

There is no evidence submitted with this Appeal Brief.

XI. RELATED PROCEEDINGS APPENDIX

To the best of Appellants' knowledge, there are no appeals or interferences related to the present appeal that will directly affect, be directly affected by, or have a bearing on the Board's decision in the instant appeal.